Wave Evolution on the Continental Shelf
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The transformation of ocean swell across a wide, shallow continental shelf was examined with data from a 100-km-long transect of bottom mounted pressure recorders extending from the shelf break to the beach at Duck, North Carolina. The analysis was restricted to periods with light winds when wave generation and breaking were expected to be relatively unimportant. The majority of the observations with low-energy incident swell conditions (significant wave height less than 1m) show weak variations in swell energy across the shelf, in qualitative agreement with a spectral refraction model. Strong attenuation of swell energy levels were observed during periods of low winds when incident significant wave heights exceeded 2.5m. The decay was not predicted by the energy conserving refraction model, suggesting that bottom boundary layer processes can play an important role in the transformation of swell across wide continental shelves. These finding were reported in Herbers, T.H.C., Hendrickson, E.J., and W.C. O'Reilly, Propagation of swell across a wide continental shelf, J. Geophys. Res., v105, 19729-19737, 2000.

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13. ABSTRACT (Maximum 200 words)
Data were analyzed from a transect of bottom-mounted pressure sensors across the North Carolina continental shelf. Strong attenuation of swell energy was observed in high energy conditions (wave height > 2.5m). This decay was not predicted by an energy conserving spectral refraction model, suggesting that dissipative bottom boundary layer process can play an important role in the transformation of swell across the continental shelf.

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